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We actually know very little about sound's effect on marine mammals and marine mammal populations. This uncertainty should be accounted for by establishing large margins to help mitigate the risks of SONAR exercises to marine mammals. These margins should be included in areas such as allowed sound levels, monitoring for marine mammals in SONAR exercise areas, areas where SONAR exercises are conducted and postulated effects of SONAR on marine mammals and marine mammal populations.

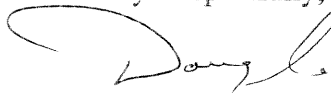
This high level of uncertainty of sound's effects on marine mammals, and both long-term and short-term management approaches that deal with this uncertainty are discussed in Marine Mammal Populations and Ocean Noise, Determining When Noise Causes Biologically Significant Effects, published by the National Research Council. The recommendations in this report for the development of models to describe and evaluate sound's effects on marine mammal populations, data collection and near-term management approaches that deal with incomplete data should be followed as a pre-condition for conducting SONAR exercises. To very briefly summarize, the National Research Council recommends:

- Development of a Population Consequences of Acoustic Disturbance (PCAD) model. This is a conceptual model that can be used to determine acoustic effects on marine mammal populations. This is a long term effort and developing the model to a point where it can be used for prediction of noise effects on populations is estimated to be at least a decade away.
- Completion of research identified in previous National Research Council reports. This research is needed for developing and completing the PCAD model.
- Development and continual updating of a database of marine mammal sightings and their responses to noise.
- Procedures and criteria using serum hormones as an indicator of stress levels in marine mammals should be developed and validated.
- A practical process for the short-term should be developed to assess the likelihood of a noise source adversely impacting marine mammal populations.
- The current method of using PBR to evaluate and limit the effects of fishing and ship strikes on marine mammals should be expanded to account for the total and cumulative impacts of all human activities, including man-made sound, on marine mammal populations.

- Minimum standards for allowing sound producing activities, SONAR in this case, should be developed. These standards would be based on expert opinion until such time as a PCAD model is developed to the point it can be used for management actions.

In summary, the EIS should address the uncertainty surrounding how SONAR will affect marine mammals and marine mammal populations. Conducting SONAR exercises poses a level of risk to marine mammal populations that we can not properly evaluate due to our lack of knowledge of noise effects on marine mammals and marine mammal populations. The risk caused by this uncertainty should be accounted for by building in protective margins that decrease the likelihood of the SONAR exercises impacting marine mammals, and following the National Research Council recommendations concerning noise effects on marine mammal populations.

Very Respectfully,



Douglas Beckman

